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CLAIMS

1. A method for producing a porous tube consisting essentially of highly crystalline polytetrafluoroethylene polymer, comprising the steps of
 - 5 (a) extruding a lubricant--polytetrafluoroethylene resin blend to form a tubing having a longitudinal axis, a primary inner diameter, and a primary length;
 - (b) heating the tubing to remove the lubricant;
 - (c) stretching the tubing along said longitudinal axis to
10 produce an elongated tubing having a secondary length greater than said primary length;
 - (d) restraining said elongate tubing to prevent said elongate tubing from longitudinally contracting during sintering;
 - 15 (e) sintering said elongated tubing to produce a sintered tubing having a length substantially equivalent to said secondary length;
 - (f) radially expanding said sintered tubing to produce radially expanded tubing have an expanded inner
20 diameter greater than said primary inner diameter; and,
 - (g) sintering said radially expanded tubing to contract said radially expanded tubing and produce a tubing having an inner diameter substantially equivalent to said primary inner diameter.
- 25 2. The method of Claim 1 including the additional step after step (g) of longitudinally stretching said sintered radially expanded tubing.
3. The method of Claim 1 including the step intermediate steps (f) and (g) of restraining the ends of said radially
30 expanded tubing to maintain the length of said radially expanded tubing when said radially expanded tubing is sintered.
4. A porous material consisting essentially of highly crystalline polytetrafluoroethylene polymer, which material
35 has a microstructure characterized by nodes interconnected by fibrils and has been radially pre-dilated.
5. A porous material in accordance with Claim 4 which is in the form of a shaped article.

6. A porous material in accordance with Claim 5 which is in the form of a tube having an inner diameter.
7. A porous material in accordance with Claim 6 in which said tube is radially pre-dilated to at least two times said inner diameter.
8. A porous material in accordance with Claim 6 in which said tube is radially pre-dilated to at least three times said inner diameter.
9. A porous material in accordance with Claim 6 in which said tube is radially pre-dilated to at least four times said inner diameter.
10. A porous material in accordance with Claim 6 in which said tube is radially pre-dilated to at least five time said inner diameter.
11. A porous material consisting essentially of highly crystalline polytetrafluoroethylene polymer, which material has a microstructure characterized by nodes interconnected by fibrils; has a Radial Expansion Coefficient (REC) of less than 2.0; and has been radially pre-dilated.
12. A porous material consisting essentially of highly crystalline polytetrafluoroethylene polymer, which material has a microstructure characterized by nodes interconnected by fibrils; has a Radial Expansion Coefficient (REC) of less than 1.7; and has been radially pre-dilated.
13. A porous material consisting essentially of highly crystalline polytetrafluoroethylene polymer, which material has a microstructure characterized by nodes interconnected by fibrils; has a Radial Expansion Coefficient (REC) of less than 1.5; and has been radially pre-dilated.
14. A porous material consisting essentially of highly crystalline polytetrafluoroethylene polymer, which material has a microstructure characterized by nodes interconnected by fibrils; has a Radial Expansion Coefficient (REC) of less than 1.0; and, has been radially pre-dilated.
15. A porous material consisting essentially of highly crystalline polytetrafluoroethylene polymer, which material has a microstructure characterized by nodes interconnected

by fibrils; has a Radial Expansion Ratio (RER) of less than 30; and, has been radially pre-dilated.

- 5 16. A porous material consisting essentially of highly crystalline polytetrafluoroethylene polymer, which material has a microstructure characterized by nodes interconnected by fibrils; has a Radial Expansion Ratio (RER) of less than 20; and, has been radially pre-dilated.
- 10 17. A porous material consisting essentially of highly crystalline polytetrafluoroethylene polymer, which material has a microstructure characterized by nodes interconnected by fibrils; has a Radial Expansion Ratio (RER) of less than 10; and, has been radially pre-dilated.
- 15 18. A porous material consisting essentially of highly crystalline polytetrafluoroethylene polymer, which material has a microstructure characterized by nodes interconnected by fibrils; has a Radial Expansion Ratio (RER) of less than 5; and, has been radially pre-dilated.
- 20 19. A porous material consisting essentially of highly crystalline polytetrafluoroethylene polymer, which material has a microstructure characterized by nodes interconnected by fibrils; has a ratio of Reduction Ration (RR) to Lubricant Level (LL) of less than 5; and, has been radially pre-dilated.
- 25 20. A porous material in accordance with Claim 11 which is in the form of a shaped article.
21. A porous material in accordance with Claim 20 which is in the form of a tube.
22. A porous material in accordance with Claim 12 which is in the form of a shaped article.
- 30 23. A porous material in accordance with Claim 22 which is in the form of a tube.
24. A porous material in accordance with Claim 13 which is in the form of a shaped article.
- 35 25. A porous material in accordance with Claim 24 which is in the form of a tube.
26. A porous material in accordance with Claim 14 which is in the form of a shaped article.

27. A porous material in accordance with Claim 26 which is in the form of a tube.
28. A porous material in accordance with Claim 15 which is in the form of a shaped article.
- 5 29. A porous material in accordance with Claim 28 which is in the form of a tube.
30. A porous material in accordance with Claim 16 which is in the form of a shaped article.
31. A porous material in accordance with Claim 30 which is in the form of a tube.
- 10 32. A porous material in accordance with Claim 17 which is in the form of a shaped article.
33. A porous material in accordance with Claim 32 which is in the form of a tube.
- 15 34. A porous material in accordance with Claim 18 which is in the form of a shaped article.
35. A porous material in accordance with Claim 34 which is in the form of a tube.
36. A porous material in accordance with Claim 19 which is in the form of a shaped article.
- 20 37. A porous material in accordance with Claim 36 which is in the form of a tube.
38. A porous material consisting essentially of highly crystalline polytetrafluoroethylene polymer, which material has a microstructure characterized by nodes interconnected by fibrils; has a structural integrity which is retained until said material is radially expanded by more than 50%; and has been radially pre-dilated.
- 25 39. A porous material consisting essentially of highly crystalline polytetrafluoroethylene polymer, which material has a microstructure characterized by nodes interconnected by fibrils; has a structural integrity which is retained until said material is radially expanded by more than 75%; and, has been radially pre-dilated.
- 30 40. A porous material consisting essentially of highly crystalline polytetrafluoroethylene polymer, which material has a microstructure characterized by nodes interconnected by fibrils; has a structural integrity which is retained
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until said material is radially expanded by more than 100%;
and, has been radially pre-dilated.

41. A porous material consisting essentially of highly
crystalline polytetrafluoroethylene polymer, which material
has a microstructure characterized by nodes interconnected
by fibrils; has a structural integrity which is retained
until said material is radially expanded by more than 150%;
and has been radially pre-dilated.

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